

PATENT
Docket No.: 45751USA8B

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

JOSEPH P. KRONZER et al.

Serial No.: 08/154,989

Filed: November 18, 1993

For: FIBROUS FILTRATION
FACE MASK

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) Group Art Unit: 3307
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) Examiner: Aaron J. Lewis
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V. Douglas
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RESPONSE

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Dear Sir:

Claims 25-34 are pending in this application. Claims 1-24 were previously cancelled because they are the subject of U.S. Patent 5,307,796.

Claims 25-34 have been rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent 4,807,619 to Dyrud et al. (Dyrud) in view of U.S. Patent 4,363,682 to Thiebault. Applicants respectfully submit that this rejection cannot be sustained.

Dyrud discloses a fibrous filtration face mask that has one or more molded fibrous shaping layers with a fibrous filtration layer disposed on one side or between the molded shaping layers.

The shaping layers can be prepared from fiber mixtures including staple fiber and bicomponent fiber in a weight-percent ratio ranging from 0/100 to 75/25. Preferably, the shaping layers include at least 50 weight-percent bicomponent fiber, and more preferably at least 75 weight-percent bicomponent fiber (column 4, lines 29-37). Dyrud also discloses that his face mask can be prepared without bicomponent fiber (column 4, lines 38-39).

Dyrud's filtration layer typically comprises fibers that do not become bonded together during the molding operation (column 6, lines 64-64). Preferred fibers are electrically-charged polypropylene melt-blown fibers having an average diameter of less than 10 micrometers (column 7, lines 1-15).

The secondary reference to Thiebault discloses a process for smoothing the fluffy surface on a filtration layer. The treatment consists of smoothing the fluffy surface by exerting light friction under low pressure in order to lay the emerging portions of the fibers down on the subjacent fibrous mask. The friction may be applied at the softening temperature so that the flattened fibers are welded to one another and with fibers to which they are in contact in order to form a skin or porous glaze that is relatively smooth and exempt from fibers that brush up and are capable of being detached. The fibers that are used in Thiebault's filtration layer may be electrically charged polypropylene fibers.

Applicants' invention pertains to a fibrous face mask that comprises a molded nonwoven fibrous layer that contains thermally bonding fibers, particularly bicomponent fibers, and optionally staple fibers. A nonwoven fibrous layer is molded in a cup-shape configuration and has a surface fuzz value of not less than 7.5 after being subjected to a surface fuzz abrasion test.

Applicants' invention is neither taught nor suggested by the Dyrud and Thiebault patents. Although Dyrud discloses a face mask that contains applicants' molded nonwoven layer, nowhere does Dyrud indicate how to maintain low degrees of surface fuzz on this layer. Thiebault does deal with a surface fuzz problem; however, Thiebault only deals with this problem in regard to a filtration layer. Thus, even if the teachings of Dyrud and Thiebault were combined, the result would be a fibrous face mask that has a smooth filtering layer. The filtering layer would not contain the composition of applicants' nonwoven fibrous layer; nor would it be molded. Please note that the teachings in Dyrud that discuss thermally bonding bicomponent fibers only pertain to the composition of a shaping layer and not a filtration layer.

In applicants' invention, it is the shaping layer that is molded and is able to demonstrate a surface fuzz value of not less than 7.5. Applicants' claims specifically indicate that their nonwoven fibrous layer, which contains at least 40 weight percent thermally bonding fibers, and at least 10 weight percent bicomponent fibers, is *molded* in a cup-shaped configuration. The filtration layer that is surface-treated in Thiebault is not a molded layer. As shown in Figure 1 of Thiebault, layer 1, the filtration layer, is surface-treated at 5. Layer 4 in Thiebault is the shaping layer that would correspond to the layer in Dyrud that contains the bicomponent fibers. In this regard, see Dyrud at column 6, lines 63-65 ("[T]he filtration layer comprises fibers that do not become bonded together during the molding operation."). Thus, the combined teachings of

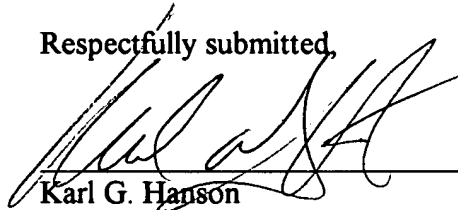
Dyrud and Thiebault fall short of suggesting applicants' invention. Without any teaching or suggestion in either or both of these references of how to produce a molded nonwoven face mask that maintains low degrees of surface, applicants' invention could not have been obvious to a person of ordinary skill within the meaning of 35 U.S.C. § 103.

Accordingly, favorable reconsideration of the Section 103 rejection is requested, and an early allowance is solicited.

To the extent necessary, applicants petition for an extension of time. Please charge any extension of time fees to Deposit Account No. 13-3723 and deposit any excess funds in that account.

Dated this 5th day of January, 1995.

Respectfully submitted,

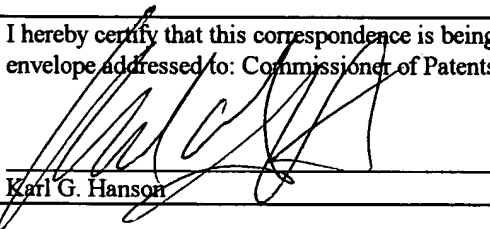


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I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, DC 20231, on the date noted below.


Karl G. Hanson

Dated: January 5, 1995